

CLIMATE RISKS, SCENARIOS, COMMITMENTS

Montgomery County

- [Emergency Climate Mobilization Resolution](#) 18-974 (2017, December)

Regional/ State

- [Chesapeake Bay Watershed Climate Impacts Summary and Outlook Summer 2019](#)
- [Maryland Climate and Health Profile](#) (2016)

Federal/ International

- [Cities at risk: dealing with the pressures of climate change](#) (2018)
- [Killer Heat in the United States](#) (2019), Union of Concerned Scientists

SEQUESTRATION

Decision-making Guidelines: Principles, social & environmental safeguards/ standards (SES)

Various principles and SES have been applied or are being developed to guide international and national decision-making and investments by banks and climate funding mechanisms. These are variously intended to ensure that trade-offs are made explicit, that social justice considerations are included, that ecological resilience is at the foreground, and that public and private actions are transparently accounted for (e.g. no double counting). Examples include:

- [San Jose Principles for High Ambition and Integrity in Carbon Markets](#), 25+ countries break away at COP25 to outline principles for building a robust and fair carbon market
- [REDD+ Social Safeguards and Standards Review](#), Forest Carbon, Markets and Communities Program (2012)
- [Principles for building resilience: Sustaining ecosystem services in social ecological systems](#) (2015)
- [10 principles for just climate change policies in the US](#), Environmental Justice Network

Analyses: Sequestration Potential

- [Matching Policy and Science - Rationale for the 4 per 1000](#) - soils for food security and climate initiative - from the lead research scientist and his team at the French National Institute for Agriculture, Food and Environment. This paper estimates that by 2030, the world could sequester 7.2 to 15.6 gigatons of carbon through soils.
- [Natural Climate Solutions](#) (2017) - provides a helpful overview of how forestry and agriculture are both sources and sinks for carbon emissions. Explores the potential to maximize sequestration while minimizing emissions - showcasing low, medium and high sequestration pathways.
- [Soil Organic Carbon: The Hidden Potential \(2017\)](#), FAO, This paper was prepared for a gathering of over 500 scientists to explore the potential of sequestering carbon through agriculture and peatland protection.
- [The Carbon Farming Solution: A Global Toolkit of Perennial Crops and Regenerative Agriculture](#) - This book by Eric Toensmeier is written in accessible language and rooted in peer-reviewed scientific analysis. It focuses on the promise of diversified agriculture, more typical in tropical countries, and on perennial crops such as nuts, beans, grains, and grasses where sequestration potential far exceeds what is possible with merely crop rotations, cover crops and no-till. Page 31 includes a chart of practices and their sequestration potential.
- [Natural climate solutions for the United States](#) (2018), Fargione et al - a broad review of the scientific literature on “natural climate solutions” (i.e. from agriculture, forests and wetlands) and their potential in the United States. Includes comparison of the amount of sequestration that could be achieved and the dollar costs, with detailed discussions of

each of the solutions and the basis for the numerical estimates in the Supplemental Information.

- Clark, M. and D. Tilman. 2017. Comparative analysis of environmental impacts of agricultural production systems, agricultural input efficiency, and food choice. *Environmental Research Letters* 12:064016 . Online at:<https://iopscience.iop.org/article/10.1088/1748-9326/aa6cd5/pdf> -- A comprehensive review of the scientific literature (through 2017) on the environmental impacts of different agricultural systems, including their overall greenhouse gas emissions (including sequestration), land needed, eutrophication caused, and energy needed. Systems compared include organic vs. conventional, grass-fed vs. grain-fed beef, greenhouse vs. open-field produce, and different kinds of aquaculture vs. open-water fisheries.
- Garnett, Tara et. al. 2017. *Grazed and Confused? Ruminating on cattle, grazing systems, methane, nitrous oxide, the soil carbon sequestration question - and what it all means for greenhouse gas emissions*. Food Climate Research Network (FCRN), University of Oxford. Online at: https://www.fcrn.org.uk/sites/default/files/fcrn_gnc_annexes.pdf - A detailed review by an international team of experts on the much-debated question of whether increased soil carbon sequestration in grazing systems can offset the rest of the emissions due to cattle (methane from the rumen, methane and nitrous oxide from manure, and soil carbon emissions).
- Ripple, William J., Pete Smith, Helmut Haberl, Stephen A. Montzka, Clive McAlpine and Douglas H. Boucher. 2014. Ruminants, climate change and climate policy. *Nature Climate Change* 4: 2-5. Online at: http://health.gov/dietaryguidelines/dga2015/comments/uploads/CID230_Ripple_2014_NatureClimateChange-Ruminants.pdf - Shows that the majority of emissions from agriculture come from ruminant livestock, particularly beef cattle.
- [Grasslands More Reliable Carbon Sink than Trees](#) - focuses on the tradeoffs between focusing on grasslands and agriculture versus forests in the state of California.
- Eshel, G., Shepon, A., Makov, T. and Milo, R., 2014. Land, irrigation water, greenhouse gas, and reactive nitrogen burdens of meat, eggs, and dairy production in the United States. *Proceedings of the National Academy of Sciences*, 111(33), pp.11996-12001. Online at: <https://www.pnas.org/content/pnas/111/33/11996.full.pdf> - A detailed analysis of the environmental impacts of different kinds of food derived from livestock in the US, include need for land, need for water, emissions of greenhouse gases and release of reactive nitrogen (a major cause of water pollution and eutrophication). Shows that the impact of beef is much higher than for other meats, dairy and eggs.
- [Root Disease can Rival Fire and Harvest in Reducing Forest Carbon Storage](#) - Root diseases are known to suppress forest regeneration and reduce growth rates, and they may become more common as susceptible tree species become maladapted in parts of their historic ranges due to climate change. However, current ecosystem models do not track the effects of root disease on net productivity, and there has been little research on how the dynamics of root disease affect carbon (C) storage and productivity across infected landscapes. The implications are that we should not take absolutist positions

about the potential of forestry versus agriculture to sequester carbon but rather seek to maximize the potential of both.

- Siegner, Katie; Wentzell, Scott; Urrutia, Maria; Mann, Whitney and Kennan, Hallie. 2019. *Maximizing Land Use Benefits from Utility-Scale Solar*. Yale Center for Business and the Environment, Yale School of Forestry and the Environment. Online at: <https://cbey.yale.edu/research/maximizing-land-use-benefits-from-utility-scale-solar> - A detailed study of the value of both the direct benefits and the ecosystem services (e.g. emissions reductions, pollination services, reduced erosion, water retention, improved crop growth, etc.) associated with combining solar energy with agriculture.
- Bennett, Ashley and Fox, Jessica. 2019. *Overview of Pollinator-Friendly Solar Energy*. Electric Power Research Institute Technical Update. Online at: www.epri.com/pollinators - a review of how to insure that solar energy is pollinator-friendly, with case studies from several parts of the country.
- Macknick, Jordan; Beatty, Brenda and Hill, Graham. 2013. *Overview of Opportunities for Co-Location of Solar Energy Technologies and Vegetation*. National Renewable Energy Laboratory, Technical Report NREL/TP-6A20-60240. Online at: <https://www.osti.gov/biblio/1512073-co-location-agriculture-solar-opportunities-improve-energy-food-water-resources> - an early review of the benefits from combining solar energy with vegetation, including different kinds of agriculture, based on the findings of the Department of Energy's iNSPIRE project.
- Bookwalter, Genevieve. 2019. The next money crop for farmers: solar panels. *Washington Post*, 22 February 2019. - an article about how farmers are increasing their revenues by leasing land for solar energy, focusing on corn and soy producers in the Midwest.
- [Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good](#) - focuses on the need to protect older trees and forests as a core strategy for mitigation. MoCo needs to prioritize this as well as tree planting.
- [Alexandra Marques, Inês S. Martins, Thomas Kastner, Christoph Plutzer, Michaela C. Theurl, Nina Eisenmenger, Mark A. J. Huijbregts, Richard Wood, Konstantin Stadler, Martin Bruckner, Joana Canelas, Jelle P. Hilbers, Arnold Tukker, Karlheinz Erb, Henrique M. Pereira](#), March 4, 2019, *Increasing impacts of land use on biodiversity and carbon sequestration driven by population and economic growth*. *Natural Ecology & Evolution*, vol. 3, pages 628-637. Online at: <https://www.nature.com/articles/s41559-019-0824-3>
- Keith Paustian, Eric Larson, Jeffrey Kent, Ernie Marx, Amy Swan, October 2019. *Soil C Sequestration as a Biological Negative Emission Strategy*. Online at: <https://www.frontiersin.org/articles/10.3389/fclim.2019.00008/full>

“Organic matter additions such as compost and manures can increase soil C contents, both by virtue of the added C in the amendment itself and through improving soil physical attributes and nutrient availability, such that plant productivity and residue C inputs increase as well ([Paustian et al., 1997](#)). One difficulty in assessing the overall impact of organic amendments on net CO₂ removals is that the amendments typically originate from an “off-site” location and thus don't directly reflect on-farm CO₂ uptake from the atmosphere as with other practices described in this

section. Hence a full life cycle assessment (LCA) approach, in which the boundaries of the assessment extend outside the farm to include the source of the amendment, is needed for an accurate accounting of C accrual and net GHG reductions. An example is given by work in California on compost addition to rangeland, in which Silver and coworkers ([Ryals and Silver, 2013](#); [Ryals et al., 2015](#)) found substantial increases in soil C storage following modest compost additions (a one-time ~1.3 cm thick surface dressing), in part attributed to improved infiltration and water retention, increased grass productivity and hence greater grass root and residue inputs to soil. Without counting C in the compost addition, they estimated an increase in C storage of 0.5 tC/ha (1.8 tCO_{2eq}/ha) and 3.3 tC/ha (12.1 CO_{2eq}/ha) at two contrasting rangeland sites, respectively, 3 years after compost addition. Further, where the compost was sourced from organic waste in which the business-as-usual case involved land filling and thus potential large emissions of methane, [DeLonge et al. \(2013\)](#) estimated an average net GHG mitigation of 23 tCO_{2eq}/ha, over the 3 year study duration, considering the full LCA including landfill waste emissions vs. compost production, transport, application, and subsequent soil improvement impacts. Considering the large amount of organic waste generated by urban centers and impacts of landfiling on GHG emissions and the potential benefits of organic amendments to soil, use of compost is a potentially attractive option that merits additional R&D to assess the full range of environmental costs and benefits.”

- United Nations Food and Agriculture Organization. *Forest and climate change: Carbon and the Greenhouse effect*. Accessed 2/8/20: <http://www.fao.org/3/ac836e/AC836E03.htm>
- Joseph E. Fargione, Steven Bassett, Timothy Boucher, Scott D. Bridgham, Richard T. Conant, Susan C. Cook-Patton, Peter W. Ellis, Alessandra Falcucci, James W. Fourqurean, Trisha Gopalakrishna, Huan Gu, Benjamin Henderson, Matthew D. Hurteau, Kevin D. Kroeger, Timm Kroeger, Tyler J. Lark, Sara M. Leavitt, Guy Lomax, Robert I. McDonald, J. Patrick Megonigal, Daniela A. Miteva, Curtis J. Richardson, Jonathan Sanderman, David Shoch, Seth A. Spawn, Joseph W. Veldman, Christopher A. Williams, Peter B. Woodbury, Chris Zganjar, Marci Baranski, Patricia Elias, Richard A. Houghton, Emily Landis, Emily McGlynn, William H. Schlesinger, Juha V. Siikamaki, Ariana E. Sutton-Grier, Bronson W. Griscom. *Natural climate solutions for the United States*. Science Advances, Nov. 14, 2018, Vol. 4, no. 11. Online at: <https://advances.sciencemag.org/content/4/11/eaat1869> *January 2019 Draft California 2030 Natural and Working Lands Climate Change Implementation Plan*. Accessed 2/8/20: <https://ww3.arb.ca.gov/cc/natandworkinglands/draft-nwl-ip-1.7.19.pdf>

Table of Contents: Executive Summary; Introduction; Need for Action; Directives; Natural and Working Lands Objectives, Vision, and Status; Objectives and Vision; Status of California’s Natural and Working Lands; Natural and Working Lands 2030 Goal for State-Supported Action; Scope of the 2030 Goal; Final 2030 Goal; Pathways and Acreage Goals; Implementation; Tracking Progress and Outcomes; Moving Forward; Implementation Needs and Considerations; Next Steps; Appendices: Appendix A: Description of Tools, Methods, and Modeled Activities; Appendix B: Ecoregional Implementation; Appendix C: California Natural Resources Agency Board, Department, and Conservancy Implementation Descriptions

- Nathalie Seddon, Beth Turner, Pam Berry, Alexandre Chausson, Cecile A.J. Girardin. 2019. *Grounding nature-based climate solutions in sound biodiversity science*. Nature Climate Change. Vol. 9, pages 84-87. Online at: <https://www.nature.com/articles/s41558-019-0405-0>
- *Growing Food Connections*. Accessed 2/8/20: <http://growingfoodconnections.org/comminnovat/baltimore-city-maryland-a-food-in-all-policies-approach-in-a-post-industrial-city/>

"The overarching goal of this partnership is to enhance community food security while ensuring sustainable and economically viable agriculture and food production. This requires building the capacity of local governments to remove public policy barriers and deploy innovative public policy tools."

- Elisie Jonsson, Jessica Page, Zahara Kalantari. *Carbon sequestration potential of different land use as nature-based solutions*. 2019. Geophysical Research Abstracts, vol. 21, p1-1p. *Copyright of Geophysical Research Abstracts is the property of Copernicus Gesellschaft mbH and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use. This abstract may be abridged. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material for the full abstract.* For access to this entire article and additional high quality information, please check with your college/university library, local public library, or affiliated institution.
- Stefano Penazzi, Riccardo Accorsi, Riccardo Manzini. *Planning low carbon urban-rural ecosystems: An integrated transport land-use model*. October 2019. Journal of Cleaner Production. Vol. 235, pages 96-111. Online at: <https://www.sciencedirect.com/science/article/pii/S0959652619322176>
- Saskia Deborah Keesstra, Agata Novara, J.P. Nunes, David C. Finger. *The superior effect of nature based solutions in land management for enhancing ecosystem services*. August 2017. Science of The Total Environment. 610-611:997-1009. Online at: https://www.researchgate.net/publication/319301503_The_superior_effect_of_nature_based_solutions_in_land_management_for_enhancing_ecosystem_services
- Jan. 14, 2019. Piecing together the case for nature-based solutions and the Paris Agreement. International Union for Conservation of Nature. Accessed 2/8/20: <https://www.iucn.org/news/forests/201901/piecing-together-case-nature-based-solutions-and-paris-agreement>
- University of California-Davis. August 14, 2019. *Compost key to sequestering carbon in the soil: Study dug deep to uncover which agricultural system store the most carbon*. Online at: <https://www.sciencedaily.com/releases/2019/08/190814161818.htm>

"Summary: In a 19-year study, scientists dug roughly 6 feet down to compare soil carbon changes in different cropping systems. They found that compost is a key to storing carbon, a strategy for offsetting carbon dioxide emissions. By moving beyond the surface level and literally digging deep, scientists at the University of California, Davis, found that compost is a key to storing carbon in semi-arid cropland soils, a strategy for offsetting CO₂ emissions.

For their 19-year study, published in the journal *Global Change Biology*, scientists dug roughly 6 feet down to compare soil carbon changes in conventional, cover-cropped and compost-added plots of corn-tomato and wheat-fallow cropping systems. They found that:

- Conventional soils neither release nor store much carbon.
- Cover cropping conventional soils, while increasing carbon in the surface 12 inches, can actually lose significant amounts of carbon below that depth.
- When both compost and cover crops were added in the organic-certified system, soil carbon content increased 12.6 percent over the length of the study, or about 0.07 percent annually. That's more than the international "4 per 1000" initiative, which calls for an increase of 0.04 percent of soil carbon per year. It is also far more carbon stored than would be calculated if only the surface layer was measured."
- *Carbon Cycle Institute*. Accessed 2/8/20: <https://www.carboncycle.org/about-cci/> "About CCI: The Carbon Cycle Institute's mission is to stop and reverse climate global change by advancing science-based solutions that reduce atmospheric carbon while promoting environmental stewardship, social equity and economic sustainability. The Carbon Cycle Institute (CCI) is advancing this mission through our Ag Carbon Program, which is advancing carbon farming and regenerative rangeland management that builds soil carbon and critical ecosystem services on ranches, farms and working landscapes."

"As a key part of its mission in advancing climate justice, the Carbon Cycle Institute has been exploring how a focus on soils, soil health and soil carbon can address social and environmental justice for rural and urban communities in California (and the US). This report chronicles our exploration of this question, with leading social and climate justice leaders across CA. We encourage you to read the report, as we found a vibrant set of approaches to advance justice, community resilience, and healthy soils. CCI and our partners will be working to identify opportunities to advance these approaches through community-scale projects across CA, and building the local and state policies and economic supports to scale them." **To download a copy of the full report or the executive summary, please submit a form on accessed on this link:** <https://www.carboncycle.org/programs/healthy-soils-healthy-communities/>

- Fast Company. Accessed 2/8/20: <https://www.fastcompany.com/90439526/how-boulder-is-creating-a-path-for-cities-to-scale-up-carbon-sequestration> *How Boulder is creating a path for cities to scale up carbon sequestration.*
- Michael Battista. Posted February 26, 2019. Accessed 2/8/20: <https://carbonneutralcities.org/organic-material-recovery-natural-carbon-sequestration/> *Organic Material Recovery & Natural Carbon Sequestration.*

Montgomery County

Montgomery County Reports and Plans related to GHG emissions
See MC Reports Related to GHG Emissions spreadsheet.

MoCo GHG Inventory

- [County GHG Inventory](#) (2018)

MoCo Population and Land-use

- [Demographic Profile of MoCo](#) (2016)
- [Montgomery County Data Atlas](#) (2012)
- [Montgomery County Snapshot: Council Districts by the Numbers](#) (2012)
- [MCATLAS](#) Montgomery County e.g. go to Environmental Features to look at soils

Agriculture/ soils

- [Office of Agriculture Services](#)
 - [Census of Agriculture 2017: Montgomery County Statistics](#)
 - [Montgomery County Soil Conservation District](#)
 - [Montgomery County Farm Directory](#)
- **Montgomery Planning Department**
 - [Agricultural Reserve](#) (note, last master plan, 1980)
- **MoCo in the Maryland Watershed Implementation Plan to Restore Chesapeake Bay by 2025**
 - [Maryland Phase III Watershed Implementation Plan](#)
- **The MoCo Agriculture Reserve**
 - The [story](#) of the reserve and [Transfer of Development Rights programs](#)
 - [Map](#) (2015)

Forests/ wetlands

- **Department of Environmental Protection**
 - [Montgomery Planning: Environment](#)
- [Tree Canopy Law and Annual Reports](#)
- Illustrated summary of [15 years of natural reforestation of agricultural land in upper Montgomery County](#) (from Doug Boucher)

Urban/ Suburban

- [Carbon dioxide sequestration model of a vertical greenery system](#) (2015)

Integrated systems

- **Division of Solid Waste Services**
 - [Strategic Plan to Advance Composting, Compost Use, and Food Scraps Diversion in Montgomery County](#) (2018)
- Water

- [Protecting the source and maintaining water quality affordability](#) (2018) Prepared by the Ecogix Group for Maryland Sierra Club
- [Chesapeake Bay Foundation](#) on the 2020 Maryland Legislative Session and Clean Water Blueprint

Regional/ State

Agriculture/ soils

- [Sequestering carbon in agricultural soils: what works?](#) Webinar by Dr Sara Via, linking science to Maryland GHG emission reduction goals.
- <https://www.csuchico.edu/regenerativeagriculture/assets/documents/ra101-reg-ag-new-definition-press-release.pdf>
- <https://www.csuchico.edu/regenerativeagriculture/assets/documents/ra101-reg-ag-definition.pdf>
- <https://regenerationinternational.org/annotated-bibliography/>

Forests/ wetlands

Urban/ Suburban

- Maryland Department of Natural Resources: [Lawn Alternatives](#)
- [Ernst Seeds](#): Native plants for restoration/ reclamation

Other aspects of the sequestration system

Thinking in terms of food systems:

- [What our region grows to eat and drink](#): Agriculture's Past, Present, and Future in and around the Metropolitan Washington Region, (January 2019), Metropolitan Washington Council of Governments
- [2019 Chesapeake Foodshed Assessment](#)

Federal/ International

Agriculture/ soils

- [Healthy Soils to Cool the Planet: A philanthropic action guide](#) (2019)
- [Carbon Cycle Institute](#) - providing carbon farming planning to over 200 ranches and farms in California. This group can provide recommendations for county policies, financing, and planning to promote soil carbon drawdown through the county's agricultural systems.
- [California is Turning Farms into Carbon Sucking Factories](#)
- [Climate-smart soils](#) (2016), Nature
- [Marin Carbon Project](#) see also NYTimes [Can dirt save the earth?](#) (2018)
- **"Mission** In response to the rapid pace of global climate change, the Marin Carbon Project (MCP) seeks to enhance carbon sequestration in rangeland, agricultural, and forest soils through applied research, demonstration and implementation in Marin County. **Vision** Our vision is for landowners and land managers of Marin's agricultural ecosystems to serve as stewards of soil health and to undertake [carbon farming](#) in a manner that can improve on-farm productivity and viability, enhance ecosystem functions, and stop and reverse climate change."
- [Is compost the secret to making ag climate friendly?](#)
- [Climate Smart Agriculture Sourcebook](#) (2013), FAO
- [The Carbon Farming Solution](#) (2016)

Forests/ wetlands

- [The Global Tree Restoration Potential](#) (2019), Bastin et al, Science 05 Jul 2019: Vol. 365, Issue 6448, pp. 76-79 DOI: 10.1126/science.aax0848

Urban/ Suburban

[Urban Drawdown Initiative](#): Boulder and San Francisco examples

- "The Urban Drawdown Initiative brings together cities, resource specialists, community-based organizations, scientists, innovators, land managers, and others to accelerate implementation of carbon removal strategies that simultaneously improve the social, economic, and environmental resilience of local communities. Inspired in part by Paul Hawken's groundbreaking book, [Drawdown](#), the Initiative was established to support and disseminate city-scale actions that operationalize high-leverage drawdown actions. In 2017, a group of cities began exploring the role of cities in carbon drawdown. Working with the [Urban Sustainability Director's Network](#) and [Carbon Neutral Cities Alliance](#), these cities began developing innovative solutions to carbon drawdown that could also address climate adaptation and social equity objectives. This work has produced an evolving framework and action pathways for city-based drawdown opportunities, as well as a growing [resource database](#)."

[Carbon Capture Gardens](#) on The Nature of Cities

[How to turn your backyard into a carbon sink](#)

[Climate wise landscaping](#)

[Capturing carbon in urban soils: What's possible?](#)

- Carbon Neutral Cities Alliance. Accessed 2/8/20:
<https://www.usdn.org/public/page/13/CNCA> “The Carbon Neutral Cities Alliance is a collaboration of leading global cities working to cut greenhouse gas emissions by 80–100% by 2050 or sooner—the most aggressive GHG reduction targets undertaken anywhere by any city.” The Carbon Neutral Cities Alliance is a project of Urban Sustainability Directors Network (<https://www.usdn.org/index.html#/>).

Other aspects of the sequestration system - including composting

- [National Fish, Wildlife and Plants Climate Adaptation Strategy](#) (2012)
- [Compost and Climate Connections resources](#) (on-going), Institute for Self-Reliance
- Institute for Local Self-Reliance: [Series on the Compost Climate Connection](#)
- [Makesoil](#): Movement-building for local soil-making
- [Kiss the Ground](#): Movement-building for regenerating soil

Ecosystems-Based Adaptation: A rich network of partners and international policy/ program activities

- [IUCN](#): Ecosystems-based approaches to climate change adaptation
- [UNDP](#): Ecosystems-based adaptation and mitigation
- [Integrating community and ecosystems-based approaches in climate adaptation responses](#) (2012), IUCN, WWF, CARE and IIED

FINANCE & CREATING VALUE: INVESTMENT PLATFORMS

[Ecosystems Services Market Consortium](#): Growing Resilience in Agriculture

[NORI](#) Carbon Removal Marketplace

[The Sacred Rivers Climate Project](#) and links to [HiveMind Mycelium Carbon Vaults](#)

Payment for Environmental Services (PES)

Political leaders and policy-makers now what needs to happen? News stories

[Biden in Iowa](#) (December 2019)

EXAMPLES OF LOCAL JURISDICTIONS LEGISLATING FOR FINANCE FOR CLIMATE

- Branford, CT [Coastal Resiliency Fund](#)

EQUITY, RESTORATIVE JUSTICE, CLIMATE JUSTICE, COMMUNITY ACTION

Montgomery County

Regional/ State

Federal/ International

- [Equitable and Just Climate Platform](#)
- [Cool Block](#)
- Citizen science in Richmond: [Where do we need shade?](#)
- [Heatwave Guide for Cities](#) (2019), International Red Cross/ Red Crescent Climate Centre

BIG, BOLD IDEAS & PLATFORMS

[Project Drawdown](#): Climate Solutions and inspired by this the [Urban Drawdown Initiative](#), which brings together cities, scientists, community-based organizations etc to 'support and disseminate city-scale actions that operationalize high-leverage drawdown actions'.

[The Foundation for Climate Restoration](#): And see the White Paper [Climate Restoration: Solutions to the Greatest Threat Facing Humanity and the Planet Today](#)

[The Resilience Shift](#): Stimulating resilience in critical infrastructure systems (e.g. water systems, supply chains)

[100 Resilient Cities \(100RC\)](#): While this program resourced through The Rockefeller Foundation is now closed (evolving into a new phase), it provides an important model for understanding how to move a strategic focus on climate-resilience within local jurisdictions

Integration/ Systems-led Knowledge and Action

[Global Landscapes Forum](#): Knowledge-led platform on integrated land-use dedicated to achieving the Sustainable Development Goals and Paris Climate Agreement

[Urban Footprint](#), urban planning software, partners with [StreetLight Data](#), to enhance urban mobility planning.

Potential with private sector actors

IKEA: <https://www.cnbc.com/2019/11/28/ikea-to-invest-220-million-to-make-it-a-climate-positive-business.html>

ADAPTATION

Montgomery County
Regional/ State
Federal/ International

[Adapt Now: A Global Call for Leadership on Climate Resilience](#) (2019), The Global Commission on Adaptation, also launching the Year of Action (2020) with [Eight Action Tracks](#): food security and rural livelihoods; finance; cities; infrastructure; natural environment; locally led action; water; disaster risk management.

[US Climate Resilience Tool-kit](#)

[CAKE Climate Adaptation Knowledge Exchange](#) and [Antioch University Center for Climate Preparedness and Resilience](#)

[Georgetown Climate Center: Adaptation Clearing House](#)